Maricopa County
Air Quality Department

Maricopa County Air Quality Department
1001 N Central Ave, Suite 125, Phoenix, AZ 85004
Phone (602) 506-6010 Fax (602) 372-0587
AQPermits@mail.maricopa.gov

NON TITLE V PERMIT - MINOR MODIFICATION APPLICATION

NOTIFICATION OF MINOR MODIFICATION AT A CURRENTLY PERMITTED FACILITY

ALL APPLICANTS MUST COMPLETE THE ENTIRE APPLICATION

Per Rule 220, Section 405 and Section 406, this notification must be submitted for a currently permitted facility for a minor permit revision. This notification is not required for changes in work schedules or relocation of equipment for similar use within a permitted facility.

Important: Please note that email will be our primary means for routine communication with you, unless you do not have an email account. Please be sure that your email address is entered correctly.

Submit this notification prior to making the modifications. If confidentiality is claimed pursuant to ARS §49-487, a fully completed application with confidential information clearly identified along with a separate copy of the application for public review without the confidential information and a written justification for the confidentiality claimed must be submitted. Complete both sides by typing or printing legibly. A filing fee of **$200.00** must accompany your application (make checks payable to MCAQD). If the application is submitted as a result of receiving a notice of violation (NOV), an additional **$100.00** late fee must accompany the application. Before the permit is issued, the Permittee will be billed for all permit processing time required for a billable permit action at a rate of $150.00 per hour, adjusted annually under Department Rule 280 (Fees), §304. An annual administrative fee will also be charged per Rule 280, §302.2. For questions regarding billing, call (602) 372-1071.

Business Name: Hickman's Egg Ranch, Inc.	Existing **Air Quality Permit Number** for this Site: 040136
Address of Site: 32425 West Salome Hwy.	#41139
City: Arlington State : **AZ** Zip Code: 85322	Telephone At Site : (623) 386-1333
Contact Person at Site : Francisco G. Ruiz (Frank)	
Mailing Address :32425 W. Salome Hwy.	
City: Arlington State: AZ Zip Code: 85322	Telephone : (623) 872-2341
Fax : (623) 386-1382	E-mail : fruiz@hickmanseggs.com

The authorized contact person regarding this application is:

Name:	Francisco G. Ruiz (Frank)	Telephone :	(623) 872-2341
Title:	Safety & Health Coordinator	Fax:	(623) 386-1382
Fax :	(623) 386-2341	E-mail : fruiz@hickmanseggs.com	

I certify that I am familiar with the operations on this application and the information provided herein is true and complete to the best of my knowledge.

Signature of owner or responsible official of business :

Type or print name and title : Francisco G. Ruiz/Safety & Haelth Coordinator Date: January 28, 2016

Do Not Write In This Space.

Reviewed by: Date :

☐ Approved ☐ Denied

Reason for denial :

For Office Use Only	Date Received:	Log Number:

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NON-TITLE V PERMIT - MINOR MODIFICATION APPLICATION

1. Narrative description of the proposed modification :

Addition of two new (2016) diesel generators 464 HP, 250kw, relocation of two old diesel generators (G-5 & G-6), and one (1997) diesel generator 1,000 kW and two new Miura boilers 300 HP for the Protein Plant:
Two new generators Cummins, model QSL9-G7 NR3, 2016: (These generators will be operating 52 hrs. per year for weekly testing)
G-45 for Pullet Houses E & F
G-47 for Lay Houses 9 & 10
The two old generators G-5 & G-6 will be relocated to the truck shop and transportation building.
The 1997 diesel generator Caterpillar, model 3512 DITA, S/N 24Z08199: (This generator will be operating 52 hrs. per year for weekly testing)
G-46 for the Protein Plant
Two Miura Boilers, model LX-300 SG, 300HP, 10,050,000 BTU/HR for the Protein Plant

2. Provide a list of equipment and emission control devices which will be installed or modified :

Assigned Equipment Number	Describe each Piece of Equipment Include Make & Model	Date of Installation or Modification	How Many	HP, KVA Gallons or Other Ratings (Specify Units)	Exhaust - Vent to Air	Exhaust - Vent to Control (Identify)		
G-45	Gen Set 2016 Cummins, QSL9-G7 NR3, 250kW	March 1, 2016	1	464 HP	Yes		Add Row	Remove Row
G-46	Gen Set 1997 Caterpillar, 3512 DITA, S/N 24Z08199	February 28, 2016	1	1,000 kW	Yes		Add Row	Remove Row
G-47	Gen Set 2016 Cummins, QSL9-G7 NR3, 250kW	March 1, 2016	1	464 HP	Yes		Add Row	Remove Row
	Miura Boiler, LX-300 SG, 300 HP	February 28, 2016	2	10,050,000 BTUs each	Yes		Add Row	Remove Row
G-5	Gen Set 2001 Cummins, LTA-10G1, 230kW	March 15, 2016	1	380 HP	Yes		Add Row	Remove Row
G-6	Gen Set 1999 Cummins, LTA-10G1, 230kW	March 15, 2016	1	380 HP	Yes		Add Row	Remove Row

3. Material List : List all materials handled, stored, processed, used, mixed, treated, or emitted. Include chemicals, mixtures, resins, cleaning compounds, etc., in this list. Identify each in sufficient detail and provide material safety data sheets (MSDS)

Material	Annual Usage or Throughput	Chemical Composition (% by weight)	Equipment Number in Which Used		
				Add Row	Remove Row

4. Describe Control Devices

Type of Device	Name/ID	Gas Flow Rate SCFW	Liquid Flow Rate Gal/Min	Control Efficiency (% Weight)		
				Add Row	Remove Row

5. Materials reclaimed or shipped as waste :

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If applicable, complete the attached section Z-M.

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SECTION Z-M AIR POLLUTANT EMISSIONS

Provide a summary of the projected actual air emissions on an annual basis for the entire site in the following summary tables. Attach detailed calculations to support the figures. **If supporting calculations are not included with the application, the application will be deemed incomplete.**

Provide a summary of the actual air emissions on an annual basis for the following three columns:

(i) Emissions to be released from only the equipment and affected processes described on this notification

(ii) The entire site prior to the modification of the equipment and processes described in (i) above.

(iii) The entire site including the emissions identified in (i) above. Normally, this column will be the sum of columns (i) and (ii).

Pollutant	Column (i)	Column (ii)	Column (iii)		
Carbon Monoxide (CO)					
Oxides Of Nitrogen (NO_x)					
Oxides Of Sulfur (SO_x)					
Particulates Of 10 Microns Or Smaller (PM_{10})					
Total Suspended Particulates (TSP), Including PM_{10}					
Volatile Organic Compounds (VOCs)[1]					
Federal hazardous air pollutants (list each one separately):					
				Add Row	Remove Row

[1] VOCs are defined by EPA at: http://www.epa.gov/ttn/naaqs/ozone/ozonetech/def_voc.htm

Attach detailed calculations to support the figures in the above summary tables. Do not include the emissions from motor vehicles. Include the emissions from stationary sources, portable sources, test areas, experimental facilities, evaporative losses, storage and handling losses, fuel loading and unloading losses, etc. Specifically identify the following in detailed calculations:

1. Emissions From Each Point Source And Each Stack
2. Capture Efficiencies
3. Control Efficiencies
4. Overall Efficiencies
5. Fugitive Emissions
6. Non-point (area) Emissions

For particulate (dust) emissions, describe the types of particulates being emitted and the quantities of emissions for each type. Identify and quantify each and every type of VOC that is included in the above summary tables. Whenever a material is identified by a trade name, also provide its generic name and its chemical abstract service (CAS) number.

Help sheets for calculating emissions from specific industries or processes can be obtained at:
http://www.maricopa.gov/aq/divisions/planning_analysis/emissions_inventory/instructions.aspx

If you need help completing the application package, please see our website or contact 602-506-5102.
http://www.maricopa.gov/aq

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FEDERAL HAZARDOUS AIR POLLUTANTS LIST

(Federal Clean Air Act, Title I, Section 112(b))

CAS No.	Chemical name
75070	Acetaldehyde
60355	Acetamide
75058	Acetonitrile
98862	Acetophenone
53963	2-Acetylaminofluorene
107028	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
92671	4-Aminobiphenyl
62533	Aniline
90040	o-Anisidine
1332214	Asbestos
71432	Benzene (including benzene from gasoline)
92875	Benzidine
98077	Benzotrichloride
100447	Benzyl chlo ride
92524	Biphenyl
117817	Bis(2-ethylhexyl)phthalate (DEHP)
542881	Bis(chloromethyl)ether
75252	Bromoform
106990	1,3-Butadiene
156627	Calcium cyanamide
133062	Captan
63252	Carbaryl
75150	Carbon disulfide
56235	Carbon tetrachloride
463581	Carbonyl sulfide
120809	Catechol
33904	Chloramben
57749	Chlordane
7782505	Chlorine
79118	Chloroacetic acid
532274	2-Chloroacetophenone
108907	Chlorobenzene
510156	Chlorobenzilate
67663	Chloroform
107302	Chloromethyl methyl ether
126998	Chloroprene
1319773	Cresols/Cresylic acid (isomers and mixture)
95487	o-Cresol
108394	m-Cresol
106445	p-Cresol
98828	Cumene
94757	2,4-D, salts and esters
3547044	DDE
334883	Diazomethane
132649	Dibenzofurans
96128	1,2-Dibromo-3-chloropropane
84742	Dibutylphthalate
106467	1,4-Dichlorobenzene(p)
91941	3,3-Dichlorobenzidene
111444	Dichloroethyl ether (Bis(2-chloroethyl)ether)
542756	1,3-Dichloropropene
62737	Dichlorvos
111422	Diethanolamine

CAS No.	Chemical name
121697	N,N-Diethyl aniline (N,N-Dimethylaniline)
64675	Diethyl sulfate
119904	3,3-Dimethoxybenzidine
60117	Dimethyl aminoazobenzene
119937	3,3'-Dimethyl benzidine
79447	Dimethyl carbamoyl chloride
68122	Dimethyl formamide
57147	1,1-Dimethyl hydrazine
131113	Dimethyl phthalate
77781	Dimethyl sulfate
534521	4,6-Dinitro-o-cresol, and salts
51285	2,4-Dinitrophenol
121142	2,4-Dinitrotoluene
123911	1,4-Dioxane (1,4-Diethyleneoxide)
122667	1,2-Diphenylhydrazine
106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane)
106887	1,2-Epoxybutane
140885	Ethyl acrylate
100414	Ethyl benzene
51796	Ethyl carbamate (Urethane)
75003	Ethyl chloride (Chloroethane)
106934	Ethylene dibromide (Dibromoethane)
107062	Ethylene dichloride (1,2-Dichloroethane)
107211	Ethylene glycol
151564	Ethylene imine (Aziridine)
75218	Ethylene oxide
96457	Ethylene thiourea
75343	Ethylidene dichloride (1,1-Dichloroethane)
50000	Formaldehyde
76448	Heptachlor
118741	Hexachlorobenzene
87683	Hexachlorobutadiene
77474	Hexachlorocyclopentadiene
67721	Hexachloroethane
822060	Hexamethylene-1,6-diisocyanate
680319	Hexamethylphosphoramide
110543	Hexane
302012	Hydrazine
7647010	Hydrochloric acid
7664393	Hydrogen fluoride (Hydrofluoric acid)
123319	Hydroquinone
78591	Isophorone
58899	Lindane (all isomers)
108316	Maleic anhydride
67561	Methanol
72435	Methoxychlor
74839	Methyl bromide (Bromomethane)
74873	Methyl chloride (Chloromethane)
71556	Methyl chloroform (1,1,1-Trichloroethane)
60344	Methyl hydrazine
74884	Methyl iodide (Iodomethane)
108101	Methyl isobutyl ketone (Hexone)
624839	Methyl isocyanate
80626	Methyl methacrylate
1634044	Methyl tert butyl ether
101144	4,4-Methylene bis(2-chloroaniline)
75092	Methylene chloride (Dichloromethane)

CAS No.	Chemical name
101688	Methylene diphenyl diisocyanate (MDI)
101779	4,4'-Methylenedianiline
91203	Naphthalene
98953	Nitrobenzene
92933	4-Nitrobiphenyl
100027	4-Nitrophenol
79469	2-Nitropropane
684935	N-Nitroso-N-methylurea
62759	N-Nitrosodimethylamine
59892	N-Nitrosomorpholine
56382	Parathion
82688	Pentachloronitrobenzene (Quintobenzene)
87865	Pentachlorophenol
108952	Phenol
106503	p-Phenylenediamine
75445	Phosgene
7803512	Phosphine
7723140	Phosphorus
85449	Phthalic anhydride
1336363	Polychlorinated biphenyls (Aroclors)
1120714	1,3-Propane sultone
57578	beta-Propiolactone
123386	Propionaldehyde
114261	Propoxur (Baygon)
78875	Propylene dichloride (1,2-Dichloropropane)
75569	Propylene oxide
75558	1,2-Propylenimine(2-Methyl aziridine)
91225	Quinoline
106514	Quinone
100425	Styrene
96093	Styrene oxide
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin
79345	1,1,2,2-Tetrachloroethane
127184	Tetrachloroethylene (Perchloroethylene)
7550450	Titanium tetrachloride
108883	Toluene
95807	2,4-Toluene diamine
584849	2,4-Toluene diisocyanate
95534	o-Toluidine
8001352	Toxaphene (chlorinated camphene)
120821	1,2,4-Trichlorobenzene
79005	1,1,2-Trichloroethane
79016	Trichloroethyleneprocessing
95954	2,4,5-Trichlorophenol
88062	2,4,6-Trichlorophenol
121448	Triethylamine
1582098	Trifluralin
540841	2,2,4-Trimethylpentane
108054	Vinyl acetate
593602	Vinyl bromide
75014	Vinyl chloride
75354	Vinylidene chloride (1,1-Dichloroethylene)
1330207	Xylenes (isomers and mixture)
95476	o-Xylenes
108383	m-Xylenes
106423	p-Xylenes

Chemical name
Antimony Compounds
Arsenic Compounds (inorganic including arsine)
Beryllium Compounds
Cadmium Compounds
Chromium Compounds
Cobalt Compounds
Coke Oven Emissions
Cyanide Compounds[1]
Glycol ethers[2]
Lead Compounds
Manganese Compounds
Mercury Compounds
Fine mineral fibers[3]
Nickel Compounds
Polycylic Organic Matter[4]
Radionuclides (including radon)[5]
Selenium Compounds

For all listings above which contain the word "compounds" and for glycol ethers, unless otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical as part of that chemical's infrastructure.

[1] X'CN where X = H' or any other group where a formal dissociation may occur. For example KCN or Ca(CN)2.

[2] Includes mono- and di- ethers of ethylene glycol, diethylene glycol and triethylene glycol R(OCH2CH2)n-OR' where:

n = 1, 2 or 3

R = alkyl C7 or less, or phenyl or alkyl substituted phenyl

R' = H, or alkyl C7 or less, or carboxylic acid ester, sulfate, phosphate, nitrate, or sulfonate.

[3] Includes mineral fiber emissions from facilities manufacturing or glass, rock or slag fibers or other mineral derived fibers of average diameter one (1) micrometer or less.

[4] Includes organic compounds with more than one (1) benzene ring and which have a boiling point greater than or equal to 100°C.

[5] A type of atom which spontaneously undergoes radioactive decay

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NOTICE OF REGULATORY REFORM

Notice of Regulatory Reform

In accordance with A.R.S. §11-1604:

A. A county shall not base a licensing decision in whole or in part on a licensing requirement or condition that is not specifically authorized by statute, rule, ordinance or delegation agreement. A general grant of authority does not constitute a basis for imposing a licensing requirement or condition unless the authority specifically authorizes the requirement or condition.

B. Unless specifically authorized, a county shall avoid duplication of other laws that do not enhance regulatory clarity and shall avoid dual permitting to the maximum extent practicable.

C. This section does not prohibit county flexibility to issue licenses or adopt ordinances or codes.

D. A county shall not request or initiate discussions with a person about waiving that person's rights.

E. This section may be enforced in a private civil action and relief may be awarded against a county. The court may award reasonable attorney fees, damages and all fees associated with the license application to a party that prevails in an action against a county for a violation of this section.

F. A county employee may not intentionally or knowingly violate this section. A violation of this section is cause for disciplinary action or dismissal pursuant to the county's adopted personnel policy.

G. This section does not abrogate the immunity provided by section 12-820.01 or 12-820.02.

Frank Ruiz

From: Engles, Brian <Brian.Engles@empire-cat.com>
Sent: Wednesday, January 27, 2016 1:00 PM
To: Frank Ruiz
Subject: RE: 24Z08199 Emissions info

Frank, Here is the response from Cat on your engine.

Greetings,

Engine s/n 24Z08199 was built in 1997 prior to the emissions requirements for EPA nonroad engines >560kW. Engine is Pre-Tier 1.

Regards,
Engine Certification

Hopefully this answers your question, if not feel free to let me know.

Thanks,

Brian Engles
Technical Communicator
Empire Cat Power Systems
Office (602) 333-5689
Mobile (602) 622-5678
Brian.Engles@Empire-Cat.com

Our Corporate Values:
Safety. Respect. Integrity. Teamwork. Excellence. Stewardship. Astonishment.

From: Frank Ruiz [mailto:fruiz@hickmanseggs.com]
Sent: Tuesday, January 26, 2016 3:35 PM
To: Engles, Brian
Subject: RE: 24Z08199 Emissions info

Thank you

From: Engles, Brian [mailto:Brian.Engles@empire-cat.com]
Sent: Tuesday, January 26, 2016 2:16 PM
To: Frank Ruiz <fruiz@hickmanseggs.com>
Subject: 24Z08199 Emissions info

Frank, I have had to submit a request to Cat for the emissions info. I should hear back tomorrow and will let you know.

Thanks,

Brian Engles
Technical Communicator
Empire Cat Power Systems
Office (602) 333-5689
Mobile (602) 622-5678
Brian.Engles@Empire-Cat.com

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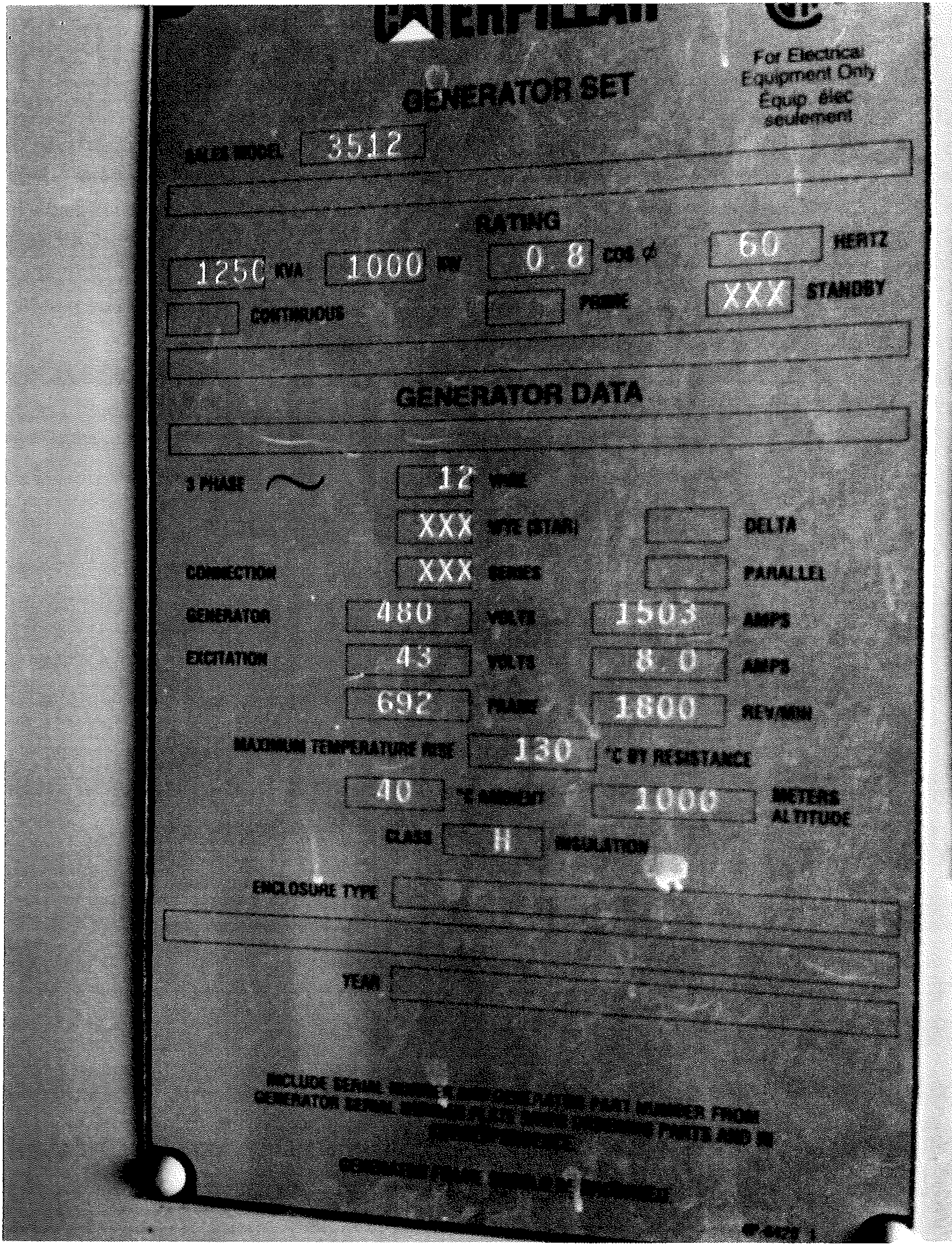
ENGINE MODEL
SERIAL NUMBER
CATERPILLAR
CAT
ARRANGEMENT NUMBER
(ALWAYS GIVE ALL NUMBERS)
MADE IN U.S.A.


CATERPILLAR
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GENERATOR SET
SALES MODEL
3512
RATING
1250 KVA
1000 KW
0.8 COS φ
60 HERTZ
CONTINUOUS
PRIME
XXX STANDBY
GENERATOR DATA
3 PHASE
12 WIRE
XXX WYE (STAR)
DELTA
CONNECTION
XXX SERIES
PARALLEL
GENERATOR
480 VOLTS
1503 AMPS
EXCITATION
43 VOLTS
8.0 AMPS
692 FRAME
1800 REV/MIN
MAXIMUM TEMPERATURE RISE
130 °C BY RESISTANCE
40 °C AMBIENT
1000 METERS ALTITUDE
CLASS H INSULATION
ENCLOSURE TYPE
YEAR

Power Generation

Exhaust Emission Data Sheet
250DQDAA
60 Hz Diesel Generator Set
EPA NSPS Stationary Emergency

Engine Information:

Model:	Cummins Inc. QSL9-G7 NR3	Bore:	4.49 in. (114 mm)
Type:	4 Cycle, In-line, 6 Cylinder Diesel	Stroke:	5.69 in. (145 mm)
Aspiration:	Turbocharged and CAC	Displacement:	543 cu. in. (8.9 liters)
Compression Ratio:	16.1:1		
Emission Control Device:	Turbocharger and CAC		

	1/4	1/2	3/4	Full	Full
PERFORMANCE DATA	**Standby**	**Standby**	**Standby**	**Standby**	**Prime**
Engine HP @ Stated Load (1800 RPM)	95.5	191	286.5	382	342
Fuel Consumption (gal/hr)	5.95	10.50	15.05	19.59	17.69
Exhaust Gas Flow (CFM)	968.7	1506.1	1906.3	2149.6	N/A
Exhaust Temperature (°F)	634	758	844	940	700
EXHAUST EMISSION DATA					
HC (Total Unburned Hydrocarbons)	0.33	0.162	0.09	0.046	0.052
NOx (Oxides of Nitrogen as NO2)	1.67	1.66	2.19	3.42	2.68
CO (Carbon Monoxide)	3.18	3.18	1.85	0.77	N/A
PM (particular Matter)	0.22	0.16	0.08	0.04	N/A
SO2 (Sulfur Dioxide)	0.142	0.132	0.123	0.115	0.12
Smoke (Bosch)	0.53	0.438	0.382	0.238	0.292
					All values are Grams per HP-Hour

TEST CONDITIONS

Data was recorded during steady-state rated engine speed (± 25 RPM) with full load (±2%). Pressures, temperatures, and emission rates were stabilized.

Fuel Specification:	46.5 Cetane Number, 0.035 Wt.% Sulfur; Reference ISO8178-5, 40 CFR86.1313-98 Type 2-D and ASTM D975 No. 2-D.
Fuel Temperature:	99 ± 9 °F (at fuel pump inlet)
Intake Air Temperature:	77 ± 9 °F
Barometric Pressure:	29.6 ± 1 in. Hg
Humidity:	NOx measurement corrected to 75 grains H2O/lb dry air
Reference Standard:	ISO 8178

The NOx, HC, CO and PM emission data tabulated here were taken from a single engine under the test conditions shown above. Data for the other components are estimated. These data are subjected to instrumentation and engine-to-engine variability. Field emission test data are not guaranteed to these levels. Actual field test results may vary due to test site conditions, installation, fuel specification, test procedures and instrumentation. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may results in elevated emission levels.

2015 EPA Tier 3 Exhaust Emission Compliance Statement 250DQDAA Stationary Emergency 60 Hz Diesel Generator Set

Compliance Information:

The engine used in this generator set complies with Tier 3 emissions limit of U.S. EPA New Source Performance Standards for stationary emergency engines under the provisions of 40 CFR 60 Subpart IIII when tested per ISO8178 D2.

Engine Manufacturer:	Cummins Inc
EPA Certificate Number:	FCEXL0540AAB-030
Effective Date:	12/09/2014
Date Issued:	12/09/2014
EPA Engine Family (Cummins Emissions Family):	FCEXL0540AAB(B563)

Engine Information:

Model:	QSL / QSL9 / QSL9-G7 NR3	Bore:	4.49 in. (114 mm)
Engine Nameplate HP:	464	Stroke:	5.69 in. (145 mm)
Type:	4 Cycle, In-line, 6 Cylinder Diesel	Displacement:	543 cu. in. (8.9 liters)
Aspiration:	Turbocharged and CAC	Compression Ratio:	17.8:1
Emission Control Device:		Exhaust Stack Diameter:	6 in.

Diesel Fuel Emission Limits

D2 Cycle Exhaust Emissions

	Grams per BHP-hr			Grams per kWm-hr		
	NOx + NMHC	CO	PM	NOx + NMHC	CO	PM
Test Results - Diesel Fuel (300-4000 ppm Sulfur)	2.8	1.7	0.07	3.8	2.3	0.10
EPA Emissions Limit	3.0	2.6	0.15	4.0	3.5	0.20
Test Results - CARB Diesel Fuel (<15 ppm Sulfur)	2.6	1.7	0.07	3.5	2.3	0.09
CARB Emissions Limit	3.0	2.6	0.15	4.0	3.5	0.20

The CARB emission values are based on CARB approved calculations for converting EPA (500 ppm) fuel to CARB (15 ppm) fuel.
Test Methods: EPA/CARB Nonroad emissions recorded per 40CFR89 (ref. ISO8178-1) and weighted at load points prescribed in Subpart E, Appendix A for Constant Speed Engines (ref. ISO8178-4, D2)

Diesel Fuel Specifications: Cetane Number: 40-48. Reference: ASTM D975 No. 2-D.
Reference Conditions: Air Inlet Temperature: 25°C (77°F), Fuel Inlet Temperature: 40°C (104°F). Barometric Pressure: 100 kPa (29.53 in Hg), Humidity: 10.7 g/kg (75 grains H2O/lb) of dry air; required for NOx correction, Restrictions: Intake Restriction set to a maximum allowable limit for clean filter; Exhaust Back Pressure set to a maximum allowable limit.

Tests conducted using alternate test methods, instrumentation, fuel or reference conditions can yield different results.
Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

Power Generation

Exhaust Emission Data Sheet

230DFAB

60 Hz Diesel Generator Set

ENGINE

Model: Cummins LTA10-G1
Type: 4 Cycle, In-line 6 Cylinder Diesel
Aspiration: Turbocharged and Aftercooled
Compression Ratio: 16:1
Emission Control Device: Turbocharger and Aftercooler

Bore: 4.92 in. (125 mm)
Stroke 5.35 in. (136 mm)
Displacement: 610 cu. in. (10.0 liters)

PERFORMANCE DATA	STANDBY	PRIME
BHP @ 1800 RPM (60 Hz)	380	345
Fuel Consumption (gal/Hr)	17.1	15.6
Exhaust Gas Flow (CFM)	1825	1645
Exhaust Gas Temperature (°F)	965	940

EXHAUST EMISSION DATA

(All Values are Grams per HP-Hour)

COMPONENT	STANDBY	PRIME
HC (Total Unburned Hydrocarbons)	0.48	0.43
NOx (Oxides of Nitrogen as NO2)	9.30	8.40
CO (Carbon Monoxide)	1.00	1.16
PM (Particulate Matter)	0.50	0.50
SO_2 (Sulfur Dioxide)	0.56	0.57

TEST CONDITIONS

Data was recorded during steady-state rated engine speed (± 25 RPM) with full load (± 2%).
Pressures, temperatures, and emission rates were stablized.

Fuel Specification:	ASTM D975 No. 2-D diesel fuel with 0.03-0.05% sulfur content (by weight), and 40-48 cetane number.
Fuel Temperature:	99 ± 9 ° F (at fuel pump inlet)
Intake Air Temperature:	77 ± 9 ° F
Barometric Pressure:	29.6 ± 1 in. Hg
Humidity:	NOx measurement corrected to 75 grains H2O/lb dry air
Reference Standard:	ISO 8178

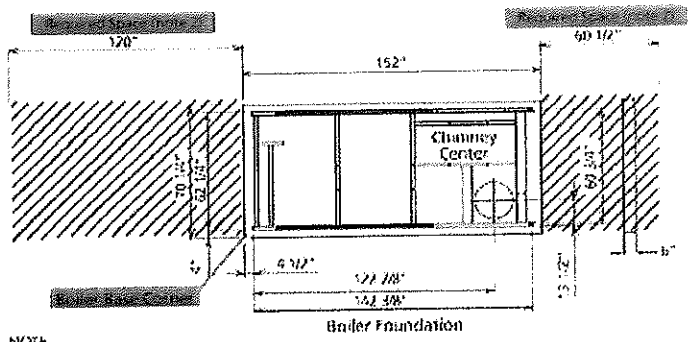
The NOx, HC, CO and PM emission data tabulated here were taken from a single engine under the test conditions shown above. Data for the other components are estimated. These data are subject to instrumentation and engine-to-engine variability. Field emissions test data are not guaranteed to these levels. Actual field test results may vary due to test site conditions, installation,fuel specification, test procedures and instrumentation. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

LX-300 SG Boilers	
Utilization Horsepower	300HP
Maximum Pressure	170 psig MAWP
Equivalent Output	10,350 LB/HR
Heat Output	10,050,000 BTU/HR
Efficiency (fuel to steam)	87%
Heating Surface Area	574 FT^2
Operational Weight	10,940 LBS
Shipping Weight	9,800 LBS
	Dimensions Given are Approximate
Width	63 in.
Length	153 1/2 in.
Height	127 in.
Combustion System	Proprietary Forced Draft, Step Fired Modulation Hi-Low-Off
Ignition System	4 Position Step Burner (Hi-Low-Ignition-Off)
Power Supply	208, 230, 460, 575V, 3 phase, 60Hz
Max. Electrical Consumption	35.2 KVA
Fuel Type	Natural Gas or Propane (3-5 PSIG)
Gas Consumption	11,500 SCFH
Gas Supply Pressure	3-5 PSIG Natural Gas or Propane
Main Steam Outlet Valve	4 in.
Safety Valve Outlet	One 1/2 in.
Main Water Inlet	1 1/4 in.
Fuel Gas Inlet	2 1/2 in.
Automatic Surface Blowdown	3/8 in.
Manual Blowdown	One 1 in. & One 1 1/4 in.
Chimney Diameter (ID)	20 in.

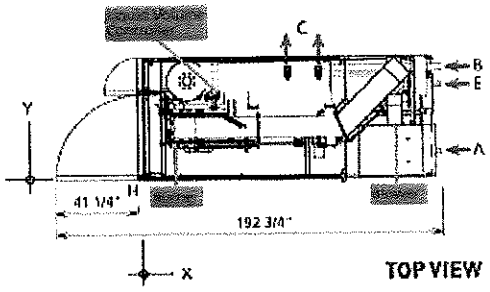
Flame Detector	Ultraviolet Flame Eye Sensor
Pressure Control	Adjustable Pressure Transducer and Switch
Liquid Volume Control	Electric Conductivity Type
Overheat Protection	Low Water Cut Off & Thermocouple

Dimensions

The drawing illustrated is LX-300 SG



NOTE
1. Dimensions, specifications and screw piping are subject to change without notice.
2. If the boilers are installed side-by-side, some space is required for replacing the pressure vessel and some parts



LX-300 SG

A1	A2	A3	B1	B2	B3	H1	H2	h*
39 ½	16 ½	21 ½	95 ½	57	78 ½	96	62	68

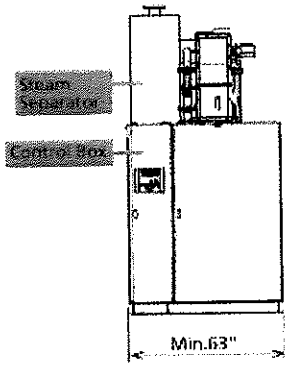
Legend		X	Y	Z	Size
A	Feedwater Inlet	148 5/8	13.9/16	8.1/2.	1.1/2" NPT
B	Supply Gas Inlet	148 5/8	56.1/4	5.1/4	2.1/2" NPT
C	C Safety Valve Outlet	72 5/6 87 13/16	55.5/8	114.15/16	2 x 2.1/2" NPT
D	Steam Outlet	21 13/16	50 5/8	127	4" 150# Flange

E	Button Blow-Off L. V. Control Blowdown Automatic Blowdown	148 5/8	47 5/8	3	1 1/4" NPT
F	Fuel Gas Outlet	123 3/8	13 9/16	95 15/16	20" I. D. Duct
G	Economizer Drain	123 3/8	13 9/16	31 7/16	2" NPT
H	Boiler Corner	0	0	0	—

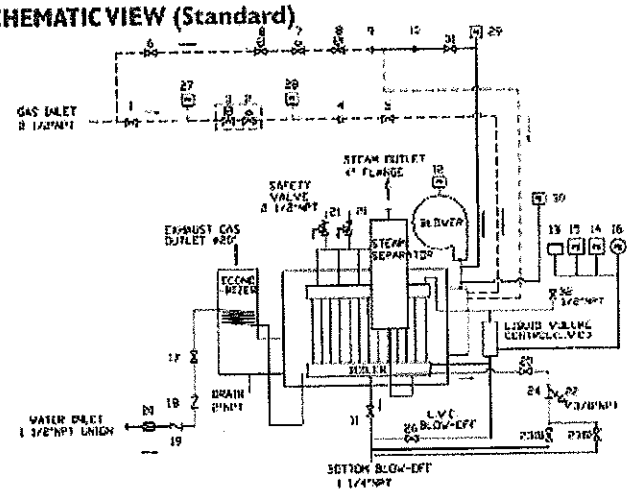
(Inches)

* Minimum height for Boiler Knock Down

FRONT VIEW



SCHEMATIC VIEW (Standard)



NO.	NAME OF PART	NO.	NAME OF PART
1	MAIN GAS VALVE	17	WATER VALVE
2	MAIN GAS REGULATOR	18	CHECK VALVE
3	GAS CONTROL VALVE	19	CHECK VALVE
4	MAIN GAS ORIFICE	20	FLOW REGULATING VALVE

5	TEST FIRING VALVE	21	SAFETY VALVE
6	PILOT GAS VALVE	22	SAMPLE WATER VALVE
7	PILOT GAS REGULATOR	23	BLOWDOWN CONTROL VALVE
8	PILOT GAS CONTROL VALVE	24	BLOWDOWN STRAINER
9	PILOT GAS ORIFICE	25	BLOWDOWN VALVE
10	PILOT AIR ORIFICE	26	L.V.C. BLOW-OFF VALVE
11	BLOW-OFF VALVE	27	GAS PRESSURE SWITCH
12	PRESSURE SWITCH	28	GAS PRESSURE SWITCH
13	PRESSURE SENSOR	29	AIR PRESSURE SWITCH
14	STEAM PRESSURE SWITCH	30	AIR PRESSURE SWITCH
15	STEAM PRESSURE SWITCH	31	GAS PRESSURE SWITCH
16	STEAM PRESSURE SWITCH	32	AIR CONTROL VALVE

Note

1. Unless otherwise specified, all items are standard.
2. This drawing is illustrated with an economizer.
3. Flanges used are anNsi B16.5 class 150#.
4. S safety valve size will change for boiler set below 150psig.
5. Design, specifications and some pipings are subject to change without notice.